

**Shannon Road/El Camino del Cerro  
(formerly the Shannon Road-Rillito Creek WQARF Site  
and the El Camino del Cerro WQARF Site)**

**Boundaries:**

The site is located in northwest Tucson, and is bounded approximately by Rudasill Road on the north, Meadowbrook Park on the east (north of the Rillito River), Shannon Road on the east (south of the Rillito River), El Camino del Cerro Road on the south, and Camino de la Tierra and the Santa Cruz River on the west.

**Site History:**

- The site consists of industrial and residential properties to the northeast of Interstate 10 (I-10). The closed El Camino del Cerro Landfill occupies approximately 20 acres of land in the southwest portion of the site area, north of El Camino del Cerro Road between the Santa Cruz River and I-10.
- Remedial investigations have been conducted by Pima County in the vicinity of the El Camino del Cerro Landfill and northeast of I-10. The remedial investigation has included characterization of the nature and extent of groundwater contamination, evaluation of aquifer characteristics near the landfill and characterization of the composition of the landfill gas.
- In 1993, volatile organic compounds (VOCs) were detected in the city of Tucson Z-006A water supply well, and this well was taken out of the Tucson Water distribution system. This well is currently used as a monitoring well.
- In 1994, VOCs were also detected in the Metropolitan Domestic Water Improvement District (Metro Water) South Shannon well and in the Acacia Gardens Mobile Home Park water supply well. Metro Water designated the South Shannon well as a backup well, and the water drawn from it was blended with the water from two other wells prior to distribution. In June 1997, Metro Water completed the installation of a wellhead treatment system for the South Shannon Well.
- In 1995, Acacia Gardens Mobile Home Park was connected to Tucson Water. In 1997, the owners of Acacia Gardens installed a wellhead treatment system for their well and operated their system until December 2000. The Acacia Gardens well was abandoned in 2001. The mobile home park is currently being supplied water from the city of Tucson.
- An initial investigation of the Arizona Wrecksperts property, formerly the AMRI Oil facility, took place in the mid-1990s after a black, tar-like substance was found on the property. In June 1995, the Pima County Health Department tested residents on the property for lead. The children on site had elevated blood lead levels, and the residents moved off site until April 1996. From February to April 1996, the ADEQ Site Assessment Unit conducted a soil removal action at the Arizona Wrecksperts property. Soil contaminated by lead and waste oil was removed and replaced with clean backfill. Additional investigations were conducted to monitor the residents' lead levels and to determine if the contamination impacted groundwater. In February 2001, lead-contaminated soil was found in the southeast corner of Western Trailer Park property, formerly part of AMRI Oil property. The lot is unoccupied, and there is currently no direct risk to residents. Additional soil and groundwater testing

has been conducted, to further determine the extent of the contamination and any potential risks it may pose.

- In September 1996, Pima County began the operation of a pilot landfill gas mitigation system flare. This system utilized a series of gas extraction wells that removed landfill gasses from the El Camino del Cerro Landfill to a flare where they were burned off.
- In May 1997, ADEQ completed the installation of five soil vapor monitoring wells in the area of the El Camino del Cerro Landfill. In December 1997, Pima County completed the El Camino del Cerro Study Area Landfill and Groundwater Operable Unit Feasibility Study Reports. Addendums to the reports were issued by Pima County in 1999. Landfill cleanup utilized vapor extraction wells and transport of the extracted gas through piping to a biomass filter. Between 20 and 40 pounds of VOCs were removed each week with this system when it was operating. The system eventually reached a state of ineffective mass removal and Pima County shut down the system to let the landfill soil gas return to equilibrium.
- The El Camino del Cerro site was placed on the WQARF Registry in August 1998 with a score of 71 out of a possible 120. In April 1999, the Shannon Road-Rillito Creek site was placed on the WQARF Registry with a score of 53 out of a possible 120.
- A site investigation of the former E.C. Winter Oil property was completed and an engineering evaluation/cost analysis was issued in June 2001. The E.C. Winter Oil facility was a used oil recycling facility from before 1967 until 1974. The property has been a residential property since the cessation of the E.C. Winter operation. In the fall of 2001, ADEQ excavated surface and near-surface contaminated soil for disposal in a permitted landfill.
- ADEQ performs groundwater monitoring three times a year and is continuing field investigation activities at the properties along the I-10 frontage road, the former E.C. Winter Oil facility, and at portions of the former AMRI Oil facility. ADEQ has installed eight new monitoring wells in the area northeast of I-10 since the spring of 2003.
- A study to determine the vertical extent of the groundwater contamination within contaminated wells at the site was conducted. The data gathered was used to develop future monitor well designs. An extensive passive soil gas survey was conducted south of the Rillito Creek to screen for potential sources of the groundwater contamination. The survey did not indicate that a significant source for the groundwater contamination exists within the Shannon Road-Rillito Creek portion of the site.
- The El Camino del Cerro Landfill is the only confirmed source of groundwater contamination within the site, but there are other potential sources of contamination in the area north and east of I-10 that may be adding to the regional groundwater degradation.
- Available data show there is a single plume and support the combination of the El Camino del Cerro and Shannon Road-Rillito Creek WQARF Sites. The El Camino del Cerro and Shannon Road-Rillito Creek WQARF Sites were administratively combined into one site, the Shannon Road/El Camino del Cerro WQARF Site, in fall 2004 based on these sampling results.

### **Site Status:**

- Monitor wells were recently installed at the site, and additional wells are planned to be installed as property access becomes available. The new wells were designed to more fully define the extent of contamination. Three of the new monitor wells will also serve as “sentinel” wells for monitoring possible contaminant migration toward Metro Water District wells. The data gathered will be used to complete ADEQ’s remedial investigation of the site.
- The water levels in some of the monitoring wells in the site are steadily decreasing. Some wells can no longer be sampled, while pumps have been lowered in some of the wells in order to continue to be able to take samples. The possibility of these wells going dry in the near future exists if the current trend of water level decline continues.
- The effectiveness of the treatment system at Metro Water’s South Shannon well was diminishing as concentrations rose in the well water. A feasibility study of upgrading the system was performed. The treatment system has been shut down, and Metro Water is currently upgrading the treatment system with two large granulated activated carbon filters. Water is being provided to customers from other wells in the Metro Water network until the upgrade is completed in the Spring of 2006.
- Soil vapor investigations at the former E.C. Winter Oil and AMRI Oil properties have been completed. The data gathered was analyzed to determine the significance of these potential contamination source areas and any risks they may pose.

### **Site Hydrogeology:**

- The western portion of the site is located within the Cortaro Basin, a block fault subbasin of the Tucson Basin. The eastern portion of the site is located within the Tucson Basin. The Tucson Basin is a broad, northwest sloping alluvial valley surrounded by mountain ranges and can be divided into four geologic units: the Pantano Formation, Tinaja Beds, Fort Lowell Formation, and recent alluvial deposits. The lower portion of the Ft. Lowell Formation and the upper Tinaja Beds comprise the regional aquifer at the site.
- The Tucson Basin is drained to the northwest by the Santa Cruz River and the Rillito Creek, one of the major Santa Cruz River tributaries.
- The Santa Cruz River and Rillito Creek are ephemeral streams that flow as a result of seasonal storm events. Effluent released from the Roger Road Wastewater Treatment Plant provides a perennial source of flow in the Santa Cruz River adjacent to the site. Runoff in Rillito Creek is usually long-term, low intensity flow resulting from mountain snow melt.
- Depth to groundwater ranges from 120 to 135 feet below ground surface in the western portion of the site, and at approximately 130 to 135 feet below ground surface in the eastern portion of the site.

**Contaminants:**

The current contaminants of concern at the site include tetrachloroethene (PCE), trichloroethene (TCE), 1,1-dichloroethene (1,1-DCE), vinyl chloride, and benzene. Contaminants that have been detected in groundwater at the site below regulatory levels include: PCE, TCE, 1,1-DCE, 1,1-dichloroethane, cis-1,2-dichloroethene and dichlorodifluoromethane (Freon 12). Additionally, lead has been detected in soil samples collected from the former AMRI Oil property. Contaminants of concern at the site may change as new data become available.

**Public Health Impact:**

There are risks associated with exposure to volatile organic compounds, principally through drinking contaminated groundwater. Many of the private wells along Casa Grande Highway and Highway Drive were impacted by the contamination. In April of 1987, Pima County began supplying bottled water to businesses along I-10, and in late 1989, Pima County purchased the private wells and connected the properties to the municipal water system. A water treatment system was used by Metro Water to ensure that drinking water met the drinking water standards. The treatment system and the South Shannon well it services have been shut down while an upgrade to the system is designed and constructed. Since no one is known to be drinking contaminated water, no one is known to be at risk of exposure to the contaminants.

The Arizona Department of Health Services (ADHS) conducted a preliminary risk assessment to address potential and/or current exposure to chemicals in groundwater and soil at the site. The preliminary risk assessment has been used to guide the investigation at the site as well as to help determine if a health effects study in the area is warranted. A final risk assessment will be completed prior to selection of a remedy for the site. Further risk assessment may also be completed at the site prior to selection of a remedy for the site.

**Community Involvement Activities:**

A joint community advisory board (CAB) was formed in October 2000 and meets on a regular basis. The CAB was combined at that time to include both the El Camino del Cerro WQARF Site and Shannon Road-Rillito Creek WQARF Site, which were separate WQARF Sites until fall 2004. These meetings are open to the public. The CAB meeting agendas and minutes can be viewed at <http://www.azdeq.gov/environ/waste/sps/meeting.html>

**Information Repositories:**

Interested parties can review site information at the information repository at the Nanini Library located at 7300 N. Shannon Road in Tucson, (520) 791-4626. Site information is also available at both ADEQ's Southern Regional Office located at 400 W. Congress, Suite 433 in Tucson, and the main office located at 1110 W. Washington Street in Phoenix. Files are available for review Monday through Friday from 8:00 a.m. to 5:00 p.m. Please call (520) 628-6715 to arrange a file review appointment at the Southern Regional Office. To arrange for a time to review the site file at the main ADEQ office, please call the ADEQ Records Center (602) 771-4378 or (800) 234-5677 (Arizona toll-free).

**Contacts:**

<b>Name</b>	<b>Phone/Fax</b>	<b>E-Mail</b>
Sherri Zendri, ADEQ Project Manager	(520) 770-3126*/ (520) 628-6745	<a href="mailto:zendri.sherri@azdeq.gov">zendri.sherri@azdeq.gov</a>
Melissa Hayes, ADEQ Community Involvement Coordinator	(520) 770-3309*/ (520) 628-6745	<a href="mailto:hayes.melissa@azdeq.gov">hayes.melissa@azdeq.gov</a>

\* In Arizona, but outside the Tucson area, call toll free (888) 271-9302.